

## **Abstract**

The present invention provides a method to control the magnetic alloy-encapsulated carbon-base nanostructures apply an appropriate amount of magnetic field during magnetic alloy-encapsulated nanostructure deposition and post treatment for improved magnetic anisotropy by electron cyclotron resonance chemical vapor deposition (ECR-CVD), the catalyst and additive on surface of substrate use DC bias and heating treatment and then etching the substrate during plasma pretreatment. The present invention is to provide control of the size and shape of the nanostructures, capability to be effectively manipulated the magnetic anisotropy and coercive force of the encapsulated magnetic nanoparticles, capability to store the magnetic signals with nano-resolution.